

WHAT IS CLAIMED IS:

1. An aqueous coating composition comprising a pigment and an aqueous acrylic emulsion polymer comprising, as copolymerized units, from 50 to 99.75% by weight, based on dry polymer weight, monoethylenically unsaturated nonionic (meth)acrylic monomer and from 0.25 to 10% by weight, based on dry polymer weight, monoethylenically unsaturated acid monomer, said polymer having a glass transition temperature (Tg) of -10 °C to 35 °C wherein said emulsion polymer is formed by emulsion polymerization at a temperature of from 70 °C to 99 °C in the presence of a thermal initiator, wherein said initiator is used in the amount of 0.3% to 0.4%, by weight, based on dry polymer weight, and wherein less than 0.15% by weight, based on dry polymer weight, of said initiator is present during the first 10%, by weight, based on dry polymer weight, of the conversion of monomers to said emulsion polymer; 0.001 to 0.05 moles of chain transfer agent/kg monomer; and a neutralizer, wherein said neutralizer is used in the amount of from 5% to 75%, on an equivalents basis, based on said monoethylenically unsaturated acid monomer, and wherein less than half of said neutralizer is present during the first 25%, by weight, based on dry polymer weight, of the conversion of monomers to said emulsion polymer.
2. An aqueous coating composition comprising a pigment and an aqueous acrylic emulsion polymer comprising, as copolymerized units, from 50 to 99.75% by weight, based on dry polymer weight, monoethylenically unsaturated nonionic (meth)acrylic monomer and from 0.25 to 10% by weight, based on dry polymer weight, monoethylenically unsaturated acid monomer, said polymer having a Tg of -10 °C to 35 °C wherein said emulsion polymer is formed by emulsion polymerization at a temperature of from 70 °C to 99 °C in the presence of a thermal initiator, wherein said initiator is used in the amount of 0.05 to 0.3%, by weight, based on dry polymer weight, and wherein less than half of said initiator is present

during the first 10%, by weight, based on dry polymer weight, of the conversion of monomers to said emulsion polymer, and a neutralizer, wherein said neutralizer is used in the amount of from 5% to 75%, on an equivalents basis, based on said monoethylenically unsaturated acid monomer, and wherein less than half of said neutralizer is present during the first 25%, by weight, based on dry polymer weight, of the conversion of monomers to said emulsion polymer.

3. The aqueous coating composition of claim 1 or claim 2 wherein said
aqueous acrylic emulsion polymer comprises, as copolymerized units based
on dry polymer weight, from 50% to 99.65% by weight monoethylenically
unsaturated nonionic (meth)acrylic monomer, from 0.1% to 12.5% by
weight aldehyde reactive group-containing monomer, and from 0.25% to
10% by weight monoethylenically unsaturated acid monomer.

15 4. The aqueous coating composition of claim 1 or claim 2 further comprising
from 2% to 40% by weight, based on the total dry polymer weight, of a
second emulsion polymer that has a Tg of from 25 °C to 150 °C, wherein
the Tg of said second polymer is at least 10 °C higher than the Tg of said
aqueous acrylic emulsion polymer.

20 5. The aqueous coating composition of claim 1 or claim 2 having a PVC of 15
to 38 and having VOC less than 5% by weight based on the total weight of
the coating composition.

25 6. The aqueous coating composition of claim 1 or claim 2 having a PVC
greater than 38 and having VOC less than 3% by weight based on the
total weight of the coating composition.

30 7. The aqueous coating composition of claim 1 or claim 2 having a PVC of 15
to 85 and having VOC less than 1.7% by weight based on the total weight
of the coating composition.

8. A method for forming a dry coating comprising:
 - a) forming the aqueous coating composition of claim 1 or claim 2;
 - b) applying said coating composition to a substrate; and
 - c) drying, or allowing to dry, said applied coating composition.
- 5
9. A substrate bearing the dry coating formed by the method of claim 8.